Does Social Belonging to Primary Groups Protect Young People from the Effects of Pro-Suicide Sites? A Comparative Study of Four Countries

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Abstract

Background: The Internet has facilitated the existence of extreme and pathological communities that share information about ways to commit suicide, or deliberately harm or hurt oneself. This material is user-generated and easily accessible. Aims: The present study analyses the buffering effect of the social belonging to a primary group in the situation of pro-suicide site exposure. Methods: Cross-national data was collected from the US, UK, Germany, and Finland in spring 2013 and 2014 from respondents aged 15 to 30 (N=3,567). Data were analysed by using linear regression separately for women and men for each country. Results: A higher level of belonging to a primary group buffered the negative association of pro-suicide site exposure with mental health, measured as happiness, although the results were not consistent in the subgroups. US males showed a significant buffering effect of the sense of belonging to family while the belonging to friends had a buffering effect among four other sub-groups: British females and males, and Finnish females and males. Conclusions: The results underline the positive potential of primary groups to shield young people's mental health in the situation of pro-suicide site exposure.

Keywords: pro-suicide sites, buffering hypothesis, social belonging, social support, happiness

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It is estimated that much online material concerning suicide does not advocate it (Recupero, Harms, & Noble, 2008; Kemp & Collings, 2011) however, suicide is endorsed on pro-suicide sites where users share their suicidal ideas, death fantasies and intentions, including concrete advice on how to carry out lethal acts (Becker & Schmidt, 2004; Biddle, Donovan, Hawton, Kapur, & Gunnell, 2008; Kemp & Collings, 2011; Recupero et. al., 2008). Although support for coping with social and psychological distress could also be available on pro-suicide websites (Baker & Fortune, 2008), the current research evidence shows that the damage associated with exposure to pro-suicide material is greater than the potential benefits of self-help (Daine et al., 2013). For example, the exposure to online discussion forums with pro-suicidal content had an association with increased suicidal ideation among young people (Dunlop, More, & Romer, 2011) and youth aged 10-17 were seven times more likely to have thoughts about killing themselves if they had been exposed to websites which encourage self-harm or suicide (Mitchell, Wells, Priebe, & Ybarra, 2014). The exposure to pro-suicide images and conversations produced by suicide-engaged communities can normalize and romanticize suicide and push ambivalent users to carrying out lethal acts instead of searching for professional help (Daine et al., 2013; Becker, Mayer, Nagenborg, El-Faddagh, & Schmidt, 2004; Tam, Tang, & Fernando, 2007).

Potentially harmful online content has become accessible for everyone with the expansion of the Internet. As such, a motivated online user will find the material he or she wishes for. On larger scale of online content, pro-suicide material is still relatively uncommon compared with other material on suicide. Recupero et al. (2008), for example, found out that only 11 per cent of the suicide web hits were actually pro-suicide. Similarly, Kemp and Collings (2011) found pro-suicide sites to be a marginal phenomenon compared to sites

dedicated to suicide prevention. We do not, however, have enough information about people accessing such sites. Previous research has particularly focused on how suicide-related web forums could have an effect on past suicidal behavior among the suicidal risk persons (Alao, Soderberg, Pohl, & Alao, 2006; Baume, Cantor, & Rolfe, 1997; Becker & Schmidt, 2004; Daine et al., 2013). However, less attention has been paid to the examination of how different online suicide communities could affect mental health and happiness of teenagers and young adults more generally. We found no earlier studies considering the pro-suicide exposure and subsequent happiness, however, a recent longitudinal Japanese study found that exposure to online suicide material increased depressive symptoms (Sueki, Yonemoto, Takeshima, & Inagaki, 2014). This gives support to assume that pro-suicide site exposure could affect adversely young people's mental health and create a potential risk for their happiness.

Happiness reflects one's emotional state characterized by positive feelings and the paucity of negative emotional states (Diener 2000). Longitudinal research in suicide has shown that previous self-reported unhappiness had a strong association with subsequent suicide and risk factors for suicide could cumulate in the course of life (Koivumaa-Honkanen, Honkanen, Koskenvuo, & Kaprio, 2003). This makes important to examine both the contributors of young people's happiness and the potential shielding mechanisms against the loss of subjective well-being. One potential protective factor in the situation of pro-suicide exposure is social support which can have both direct and buffering effects on mental health in stressful life situations (Cobb 1976; Cohen & Wills, 1985; Joiner 2005; Maulik, Eaton, & Bradshaw, 2011; Moak & Agrawal, 2009; Mueller 2006; Takizawa et al., 2006; Thoits 2011; Uchino 2006). Enhanced social support has been associated with lower levels of suicidal thoughts and a decreased likelihood of a lifetime suicide attempts (Chioqueta & Stiles 2007; Kleiman & Liu, 2013). Further, social support has been shown to reduce the impact of

psychological risk factors, such as life stress and perfectionism, on suicidal ideation (Blankstein, Lumley, & Crawford, 2007; Yang & Clum, 1994).

The purpose of this study is to explore if the sense of belongingness to primary groups of family and friends could protect young people from the negative effect of pro-suicide site exposure on happiness. Social belonging here refers to experiencing acceptance and inclusion by other group members (Thoits 2011, p. 149), while a low sense of belongingness emerges from alienation from others in a valued group such as family and friends (Joiner et al., 2009, p. 635). According to Joiner's (2005) theory on suicide, supported by empirical findings, thwarted belongingness is one antecedent factor in suicidal ideation (Joiner et al., 2009; You,Van Orden, & Conner, 2011). Belongingness to family and friends may support one's mental health by offering emotional sustenance and active help for coping, which may result in enhanced resilience to stress produced by pro-suicide communities. Given previous research, we hypothesize that a higher level of belongingness reduces the negative association of the pro-suicide site exposure with happiness.

Variations by Country and Gender

Our data were collected from four countries, namely the US, the UK, Germany and Finland each which are technologically highly advanced countries with high living standards. The countries are among the world's happiest countries according to World Happiness Report: Finland being in 7th position while the others being ranked between 17 and 26 (Helliwell, Layard, & Sachs, 2013). Despite many of the societal similarities between the four countries, there are certain differences regarding aspects of risky Internet use. For example, it had been found that children's and adolescents' risky online behavior is notably higher in Finland than in the UK and Germany (Helsper, Kalmus, Hasebrink, Sagvari, & De Haan, 2013). It therefore may be that exposure to online pro-suicide content varies between countries among young users. Because the plausible differences in happiness and pro-suicide exposure are

expected, the cross-national differences may also emerge in regards of the buffering effects against exposure to pro-suicide content.

In terms of the independent background variables, women have a higher sense of happiness than men in most advanced countries according to the World Values Survey (Layard, Clark, & Senik, 2012). For example, being male predicts a low sense of happiness among adults in Britain and Germany (Helliwell et al., 2013). Previous research does not provide information on whether gender differences regarding pro-suicide exposure actually exist. However, statistics concerning suicide rates may give some indication, as men are three times more likely to commit suicide than women in richer countries (Hawton, Saunders, & O'Connor, 2012; WHO 2014). Contrary to women, men also have an association between suicide rates and Internet use prevalence (Shah 2010). Further, women and men may not benefit similarly from family support (Evans, Steel, & DiLillo, 2013; Heinonen, Aro, Aalto, & Uutela, 2004; Michalos & Orlando, 2006). Notably, heterogenous results also concern the buffering effects of social support on mental health. Olstad and colleagues (2001) found that social network gave more buffer for women than for men whereas Takizawa's and colleagues' (2006) study indicated that men benefitted more from the buffering effect. Given previous research, gender differences may occur in buffering effects of belongingness to family and friends against pro-suicide exposure.

Data and Methods

The respondents of the study were from the US, UK, Germany, and Finland, aged 15 to 30 years. They were drawn from a pool of respondents that mirrors geographic area and socio-demographic measures of age, gender, education level, and income of each of the four countries. The sample quota was calculated to be nationally representative on age, gender and education for all of the countries (see "blinded"). The survey was filled out online and was optimized for both computers and mobile devices and tested separately in all of the respective

countries before data collection. A total of 3,567 respondents answered the questionnaire. However, the present study consists of 3,535 respondents (1015 from USA, 999 from the UK, 978 from German, from 543 Finland) due to missing values identifying the sense of happiness variable. There were no missing values in the background variables. The missing data percentages for items for belongingness to family and friends were 0.005%, and 0.005%, respectively. The missing values were imputed by Full Information Maximum Likelihood (FIML) procedure.

Measures

We employed at total of seven variables. Happiness was measured using a single-item, in which respondents were asked to indicate their numeric evaluation on a 10-point scale: ‘Answer the following question on a scale from 1–10, where 1 = extremely unhappy and 10 = extremely happy. All things considered, how happy would you say you are?’ Pro-suicide site exposure was based on a two-option question: ‘In the past 12 months, have you seen any of the following types of websites? Sites about ways of committing suicide?’. No was coded as 0, yes as 1. Belongingness to family and friend group was measured by questions on 5-point scales, namely ‘How close do you feel to family/ friends? Please indicate on a scale of 1–5 where 1 = not at all important and 5 = very important.’ The variables of age, primary occupation, and living situation were included in the path models as potentially confounding background characteristics. Age range was, again, 15–30. 'Employed' and 'student' items were encoded as 1, other options as 0. Living with parents was encoded as 1, other options as 0. Descriptive statistics for the variables by country and gender can be viewed in Table 1.

Analytic Approach

Statistical tests were conducted in order to compare differences between countries and genders in the means of the variables of happiness, pro-suicide exposure and social belongingness to the primary groups. We applied the path modeling approach with Bayesian

estimation to test the hypothesis of the direct effects of both pro-suicide site exposure and belongingness to family and friends on happiness, and whether the link between pro-suicide site exposure and happiness is moderated by the high sense of belonging to family members and friends. The Bayesian estimation was preferred here due to the variables of happiness and belongingness not being normally distributed. This made the use of Bayesian inference with no distributional assumptions more appropriate, as opposed to traditional frequentist statistics (Muthén & Asparouhov, 2012). The Bayesian estimation with Monte-Carlo Markov Chain (MCMC) was run by Mplus 7.2 with 30,000 iterations.

Three regression models were conducted separately for men and women by countries to allow for the possibility that the direct and moderated effects of the belongingness vary by country and gender. The first model analysed only the direct effects of the pro-suicide site exposure and belongingness to family and friends on happiness. The second model tested the moderating effect of the belongingness to family after controlling for the effects of belongingness to friends on happiness. The protective effect of the family was detected if the interaction term of belongingness to family and pro-suicide site exposure was statistically significant. Meanwhile, a significant association exists between pro-suicide site exposure and happiness. The third model tested the moderating effect of the belongingness to friends after controlling for the effects of belongingness to family on happiness. The model fit for each the three models was evaluated using the posterior predictive p-value (Muthén & Asparouhov, 2012; Gelman, Carlin, Stern, & Rubin, 2004). The p-values ranged from .428 to .482 in all subgroups showing excellent or good fit in three models.

Results

Cross-Country and Gender Comparisons

The average level of happiness varies across the four countries, the UK having the lowest mean (M = 6.59) and Finland the highest (M = 6.99). Finnish respondents were

significantly happier on average than respondents in the UK ($p < 0.01$) and Germany ($p < 0.05$) according to the univariate analysis of variance. Further, the respondents in the US have the higher level of happiness than British ($p < 0.001$) and German respondents ($p < 0.01$). The cross-national difference was also found through assessment of the pro-suicide site exposure in four countries since German respondents were significantly less exposed to pro-suicide sites (4.4 %) comparing to other countries in which approximately ten percent of respondents were exposed to such material ($\chi^2 = 29{,}668$, $df = 3$, $p < 0.001$). Further, the average level of belongingness to family and friends varies in the four countries significantly according to the univariate analyses of variance. British respondents felt lower levels of belongingness to the family on average compared to respondents in Germany and the US (both $p < 0.000$) and Finland ($p < 0.05$). On the other hand, German respondents felt at higher level of belongingness to their friends than respondents in the US, UK and Finland (all $p < 0.000$). Additionally, Finnish respondents felt significantly lower levels of belongingness to friends than did respondents in the US ($p = 0.001$). (See Table 1 for further information.)

Contrary to expectations, males had higher levels of happiness than females throughout the data (Mann-Whitney *U* Test, $p < .01$). At the country level, the gender difference was significant only in the UK ($p < 0.05$). As expected, males were more likely to have visited pro-suicide sites ($\chi^2 = 5.878$, $df = 1$, $p < 0.05$) but the difference between genders was not significant on the level of individual countries. There was no gender difference in the sense of belonging to family between genders but males had a higher level of belongingness to their friends than did females (Mann-Whitney *U* Test, $p=.001$). At the country level, males had a higher level of belongingness to friends in the US and Germany (both $p < 0.05$). (See Table 1 for further information.)

Predicting Happiness

According to the model 1, pro-suicide site exposure showed a significant negative association with happiness in all subgroups after the adjustment of background characteristics including age, main occupation and living with parents (see Table 2). The strongest negative association between pro-suicide site exposure and happiness was among German female according to the unstandardised coefficients. Moreover, the higher level of belongingness to the family and friends had a positive association with happiness regardless of country and gender. This is in line with the previous studies which have indicated that close relationships with family and friends and their social support have positive correlations with happiness and overall life satisfaction (Gundelach & Kreiner, 2004; Layard et al., 2012; Palisia & Canning, 1986; Campbell 1981). Belongingness to family held the greatest significance among the British males and belongingness to friends was most significant among Finnish men. Being employed or a student had a significant association with the happiness among males in all four countries. Living with parents had a negative association with happiness among females in the UK, the US and Finland, and also among males in the US sample. (See Table 2 for further information.)

The Moderating Effect of the Belongingness to the Primary Groups

The models 2 and 3 were conducted to explore whether the sense of belonging to family and friends has a moderating influence on the regression between pro-suicide site exposure and happiness. Model 2 indicated that the belongingness to family moderates the effect of the suicide-site exposure on happiness among American and Finnish men beyond that afforded by differences in the belongingness to friends and background characteristics (see table 3 for further information). Figures 1 and 2 show a closer examination, which aims at determining whether the moderation was accurate across different situations. Here, we notice that when belonging to family was low among American men, those who were exposed to pro-suicide sites also had a lower level of happiness when compared to those who were not

exposed (see squares c and d in figure 1). However, when belonging to family was high, pro-suicide site exposure did not associate with happiness (see squares a and b in figure 1). Thus, the protective effect of the family was significant when user-reported belongingness to family was low.

In addition, Finnish men showed a different effect of family belongingness when compared to American men. When the interaction term was included in the equation, the main effect of pro-suicide site exposure and happiness became insignificant (see table 3). As such, pro-suicide site exposure degrades the positive association between social belonging to family and happiness. The further analysis showed that a low level of belongingness to family was also associated with a lower level of happiness if the respondents were exposed to pro-suicide sites (see c and d in the figure 2). Surprisingly, when the belongingness to family was high, exposure to pro-suicide sites associated with higher levels of happiness (see a and b in the figure 2). It is possible that this unexpected finding could have resulted from the relatively few observations of those Finnish men whose belonging to family was one standard deviation above the mean and who were exposed by pro-suicide sites. In any case, the results did not support a protective effect of family among Finnish men.

Model 3 shows that belongingness to friends has a moderating effect for pro-suicide site exposure and happiness among British and Finnish respondents; as such, an effect beyond that afforded by differences in the belongingness to family and background characteristics (see table 4). These interactions detected were explored using plots and earlier interpretations of the protective effects of the friends was confirmed (see figures 3–6). British women and men, as well as Finnish men showed moderating effects in terms of pro-suicide site exposure, since the happiness was weaker regardless of the level of social belongingness to friends (see c and d in the figures 3, 4 and 6). Similarly, the negative effect of exposure was stronger when belongingness to friends was low (see a and b in the figures 3, 4 and 6). Among Finnish

women, happiness was also found to be lower despite a high level of social belongingness to friends. The negative effect of exposure to pro-suicide sites was stronger when a high level of belonging to friends was reported (see figure 5).

In summary, evidence was found showing that a higher level of belongingness to primary groups can buffer the harmful effect of pro-suicide sites on young people's happiness. However, the cross-national and gender differences existed in the buffering effects of belongingness to family and friends. Germany was the only country where neither women nor men benefitted from the sense of belongingness to primary groups in terms of a buffering effect. However, this result might arise from the infrequency of exposure to the pro-suicide sites among German respondents (3.9% of the females, n =19; 4.9% of the males, n = 24) that could result in the moderator effect having no chance to get any statistically significant shares of variance.

Discussion

This study provides new information regarding the protective factors against exposure to negative and harmful online content in pro-suicide sites. A considerable amount of earlier research has been devoted to different forms of online risks but studies focusing on the protective factors against such risks have received significantly less attention. The present study was conducted using cross-national data from the US, UK, Germany, and Finland in order to produce more extensive results by means of an international comparison.

So far, the comparative research into suicide-related web forums has been scarce with the exception of Sueki's and Eichenberg's (2012) study that indicated no difference between American and Japanese suicide bulleting board users. We found both differences and similarities between the countries and genders relating to the pro-suicide sites. Firstly, we found that German respondents were exposed to pro-suicide sites significantly less often compared to users in the US, UK, and Finland. This may be related to the differences in

legislation concerning online content or the cross-national differences in the role of Internet usage. Secondly, young males were more likely to encounter pro-suicide sites than females. Moreover, pro-suicide site exposure showed a significant negative association with young people's happiness, a finding that was consistent regardless of country or gender.

We also studied whether primary groups served as significant protective buffers against pro-suicide site exposure. Family members and friends have been found to have an important shielding role against daily life stressors (Cobb 1976; Cohen & Wills, 1985; Joiner 2005; Moak & Agrawal, 2009; Mueller 2006; Takizawa et al., 2006; Thoits 2011; Uchino 2006). However, relatively little research exists that has examined the elements prevalent in the online context. We found direct positive effects of the primary groups in all four countries and both genders, while the buffering effects emerged only in some of the subgroups examined. This finding is parallel with earlier research where the indirect influence of social support against stressors is not so commonly observed compared to occurrences of direct positive impacts on mental health (Eom et al., 2013; Cobb 1976; Cohen & Wills, 1985; Maulik et al., 2011; Moak & Agrawal, 2009; Takizawa et al., 2006).

While the friends created a buffering effect for only British and Finnish young people, the US was the only country where the protective effect occurred in the sense of belongingness to family. In addition, findings were contradictory among Finnish males showing that among males with high belongingness to family, visiting pro-suicide sites was associated with greater happiness. This result was, however, compromised by the sample size of Finnish data and we did not find any support for the existence of the protective effect of family among Finnish men. Further studies should further investigate the role of family involvement among young Finnish males in particular, as previous studies have shown that over-involvement in the family setting may also have negative consequences (Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999).

Thus, it seems that friends serve a greater buffering factor than family among the young people in terms of pro-suicide exposure. It may be that as young people are in the transitional phase involving moving away from home and living without a spouse or children, friends' buffering effects are more significant on average than that of the family. It is also possible that support from close friends is more available against the risk content of the Internet if young people are more connected to their friends through social media than they are with family members.

Given that earlier empirical research has also shown varying results concerning the buffering hypothesis, the exact explanation for the discrepancy between countries in this study is a challenge. The socio-cultural characteristics of the four societies may play a part in these cross-national differences. For example, the higher geographic mobility in America has been offered as an explanation for why Americans meet their kin less often than do Britons and Germans (Höllinger & Haller, 1990). However, reduced face-to-face contacts do not inevitably mean that family members could not give a meaningful sense of belongingness to young people.

The difference between genders was present in the buffering result among young people in the US. In practice, the finding indicated that males have a greater advantage from a high level of belongingness to family than women against the negative effects of pro-suicide exposure. Notably, this inconsistency between genders is a challenge also found in earlier studies which have shown that women and men do not necessarily benefit equivalently from the direct and indirect effects of social support (Evans et al., 2013; Olstad, Sexton, & Søgaard, 2001; Takizawa et al., 2006).

Limitations and Future Directions

The limitation concerning the cross-sectional data should be taken into account. Our research design included the assumption that pro-suicide sites are a potential risk for young

people's mental health and that young people who visit such sites will leave the experience with lower levels of happiness. This was a theoretically reasonable causal direction based on the earlier Japanese longitudinal study (Sueki et al., 2014). However, cross-sectional data do not allow for true cause and effect analyses and the other causal direction is theoretically possible as well; namely that people who visit pro-suicide sites are more likely to be unhappy compared to users who do not visit such sites. It is perhaps even more plausible that visiting pro-suicide sites is one part of a multifaceted pattern of unhealthy behavior; that suicidal content appeals to mentally unwell users, with the connections to a pro-suicide community reducing their sense of happiness further. Because the associations between happiness and pro-suicide sites are not fully understood yet, this is one important direction for future research. Further, it is possible that the results in this study involve the effect of the measurement error by one-item indicators therefore several-item indicators should be considered in the future studies.

Conclusion

This cross-national study offered new aspects of online risk materials and young people’s mental health across the US and three countries in Europe. According to the results, pro-suicide sites can harm mental health in a wide scale manner, not only increasing the risks of suicide-related behavior. However, close relationships with primary groups can also function as a buffer and thus protect young people’s mental health in situations of pro-suicide exposure. As young people’s happiness is affected ever more by experiences and feedback gained through social media, greater knowledge of both protective and resiliency factors concerning the Internet's risks is needed, toward improving the effectiveness of interventions while also taking into consideration other demographic and social factors of suicide-related behavior in society as a whole.

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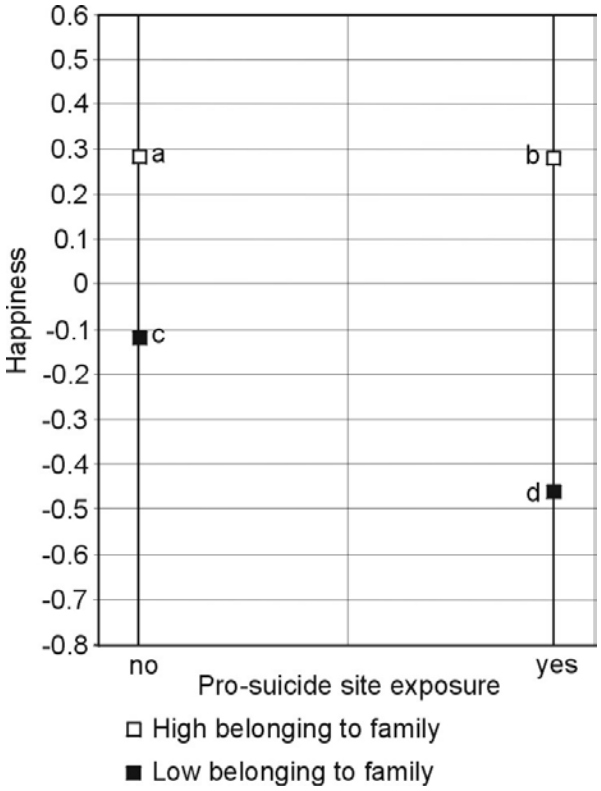

Figure 1. Belonging to Family Moderating the Association between Pro-Suicide Site Exposure and Happiness among US Men (Model 2).

Note: a refers to the high belonging to family (one standard deviation above mean) and no pro-suicide site exposure. b refers to the high belonging to family and pro-suicide site exposure. c refers to the low belonging to family (one standard deviation below mean) and no pro-suicide site exposure. d refers to the low belonging to family and pro-suicide site exposure.

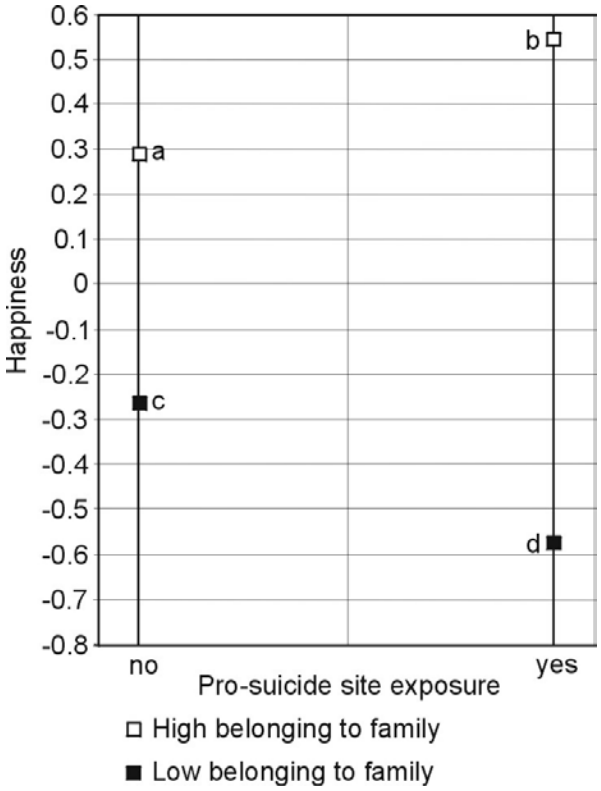

Figure 2. Belonging to Family Moderating the Association between Pro-Suicide Site Exposure and and Happiness among Finnish men (Model 2).

Note: a refers to the high belonging to family (one standard deviation above mean) and no pro-suicide site exposure. b refers to the high belonging to family and pro-suicide site exposure. c refers to the low belonging to family (one standard deviation below mean) and no pro-suicide site exposure. d refers to the low belonging to family and pro-suicide site exposure.

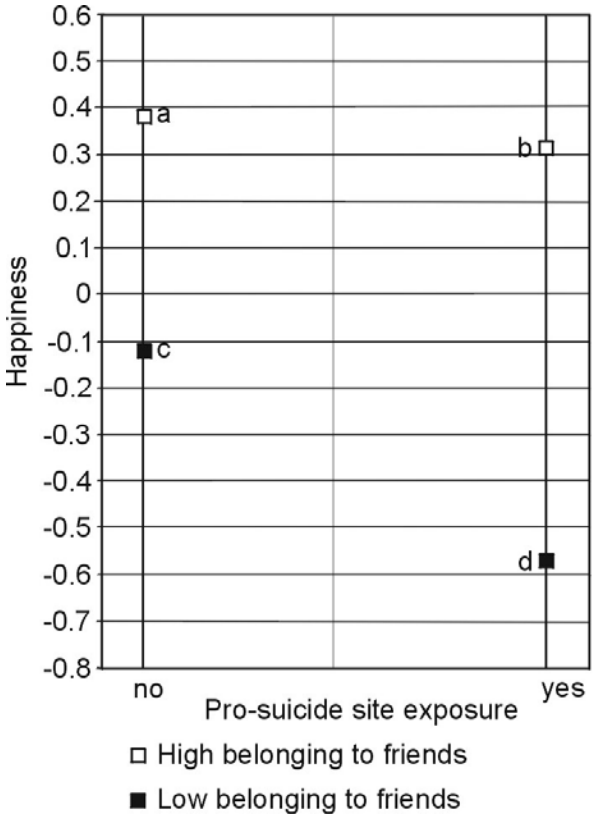

Figure 3. Belonging to Friends Moderating the Association between Pro-Suicide Site Exposure and and Happiness among UK women (Model 3).

Note: a refers to the high belonging to friends (one standard deviation above mean) and no pro-suicide site exposure. b refers to the high belonging to friends and pro-suicide site exposure. c refers to the low belonging to friends (one standard deviation below mean) and no pro-suicide site exposure. d refers to the low belonging to friends and pro-suicide site exposure.

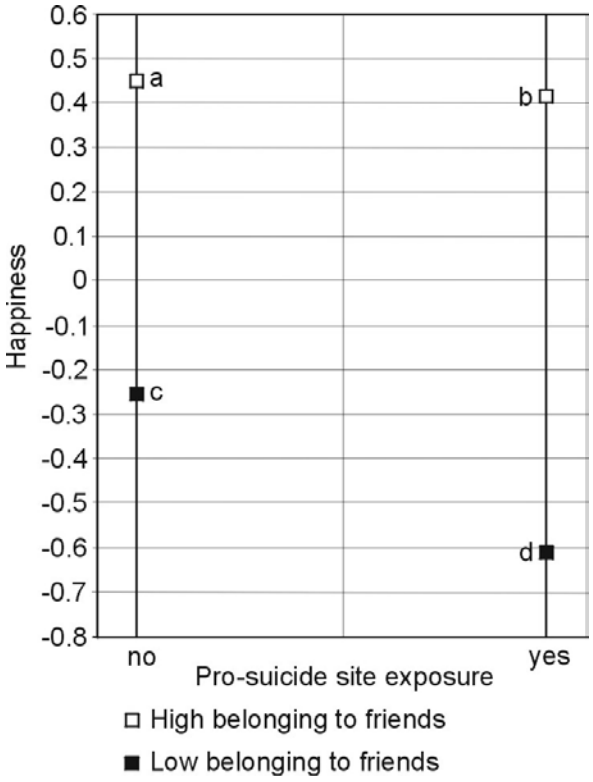

Figure 4. Belonging to Friends Moderating the Association between Pro-Suicide Site Exposure and Happiness among UK men (Model 3).

Note: a refers to the high belonging to friends (one standard deviation above mean) and no pro-suicide site exposure. b refers to the high belonging to friends and pro-suicide site exposure. c refers to the low belonging to friends (one standard deviation below mean) and no pro-suicide site exposure. d refers to the low belonging to friends and pro-suicide site exposure.

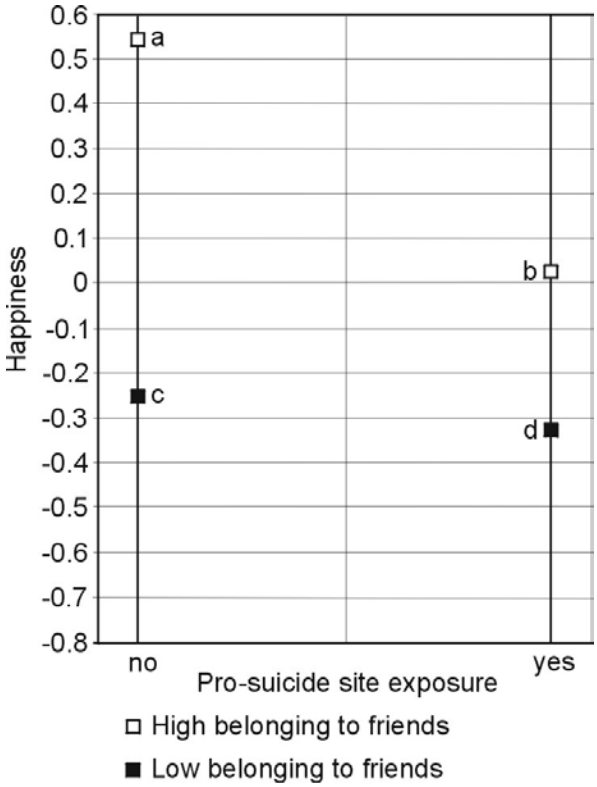

Figure 5. Belonging to Friends Moderating the Association between Pro-Suicide Site Exposure and Happiness among Finnish women (Model 3).

Note: a refers to the high belonging to friends (one standard deviation above mean) and no pro-suicide site exposure. b refers to the high belonging to friends and pro-suicide site exposure. c refers to the low belonging to friends (one standard deviation below mean) and no pro-suicide site exposure. d refers to the low belonging to friends and pro-suicide site exposure.

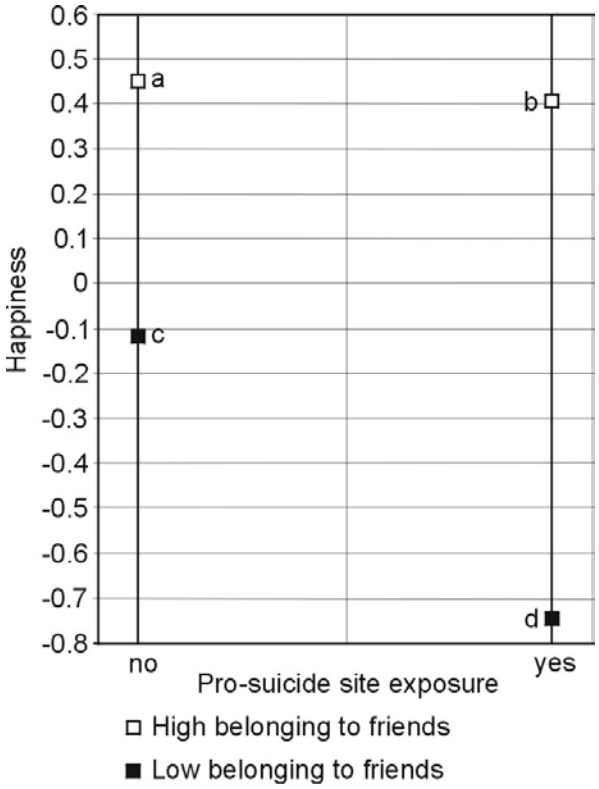

Figure 6. Belonging to Friends Moderating the Association between Pro-Suicide Site Exposure and Happiness among Finnish men (Model 3).

Note: a refers to the high belonging to friends (one standard deviation above mean) and no pro-suicide site exposure. b refers to the high belonging to friends and pro-suicide site exposure. c refers to the low belonging to friends (one standard deviation below mean) and no pro-suicide site exposure. d refers to the low belonging to friends and pro-suicide site exposure.

Table 1

Descriptive Statistics by Country and Gender

	Country											
	US			UK			Germany			Finland		
Continuous variables	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
	M (*SD*)			*M* (*SD*)			*M* (*SD*)			*M* (*SD*)		
Happiness	6.92	7.02	6.97	6.44	6.73	6.59	6.54	6.78	6.66	6.90	7.08	6.99
	(1.96)	(2.07)	(2.02)	(2.06)	(2.05)	(2.06)	(2.22)	(2.16)	(2.20)	(1.85)	(2.09)	(1.98)
Belongingness to family	4.22	4.20	4.21	4.00	3.92	3.96	4.26	4.19	4.23	4.14	4.09	4.12
	(.99)	(.99)	(.99)	(1.09)	(1.13)	(1.11)	(1.03)	(1.08)	(1.05)	(.99)	(1.16)	(1.08)
Belongingness to friends	3.70	3.88	3.79	3.64	3.73	3.69	3.91	4.06	3.98	3.53	3.61	3.57
	(1.13)	(1.04)	(1.09)	(1.15)	(1.05)	(1.10)	(1.01)	(.95)	(.99)	(1.05)	(1.14)	(1.09)
Age	25.04	23.17	24.12	24.37	22.03	23.18	24.01	22.39	23.20	23.82	23.44	23.63
	(3.69)	(4.18)	(4.05)	(3.79)	(4.15)	(4.14)	(3.71)	(4.08)	(3.98)	(4.09)	(4.31)	(4.20)
Dummy variables	%			%			%			%		
Pro-suicide sites exposure	8.2	11.7	10.0	9.0	11.8	10.4	3.9	4.9	4.4	9.2	10.3	9.8

Employed or student	70.5	88.9	79.6	78.8	85.9	82.4	78.8	88.5	83.6	74.2	79.0	76.6
Living with parents	33.8	50.5	42.1	35.5	54.2	45.0	28.2	48.4	38.2	25.1	37.9	31.5
n	512	503	1015	490	509	999	490	488	978	271	272	543

Note: N = 3,535. Happiness range is 1-10. Belongingness to family/friends range is 1-5.

Table 2

Predicting the Sense of Happiness (Model 1)

	Country							
	US		UK		Germany		Finland	
	Female	Male	Female	Male	Female	Male	Female	Male
Explanatory	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*
variables	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)
Pro-suicide	-.187*	-.207**	-.199**	-0.215**	-.423***	-.217**	-.211*	-.294**
site exposure	(.081)	(.087)	(.084)	(.078)	(.092)	(.090)	(.106)	(.112)
Belongingness	.409***	.458***	.500***	.579***	.440***	.431***	.532***	.519***
to family	(.095)	(.099)	(.089)	(.092)	(.102)	(.101)	(.114)	(.133)
Belongingness	.378***	.345***	.552***	.572***	.552***	.593***	.383***	.624***
to friends	(.095)	(.099)	(.091)	(.095)	(.102)	(.102)	(.112)	(.127)
Age	-.022	-.014	.042*	-.004	.045	-.049*	-.073*	.025
	(.025)	(.025)	(.024)	(.022)	(.029)	(.026)	(.035)	(.032)
Employed or	-.190	.488*	.150	.715**	.121	.550*	-.236	.894**
student	(.183)	(.278)	(.208)	(.226)	(.225)	(.276)	(.250)	(.277)
Living with	-.561**	-.351*	-.648***	-.171	-.135	.159	-.530*	.230
parents	(.190)	(.208)	(.189)	(.187)	(.239)	(.210)	(.318)	(.274)
R^2	.157	.149	.246	.291	.223	.237	.210	.329
Model fit								
χ^2	.475	.463	.471	.477	.471	.474	. 453	.445
BIC	10421.261	10105.349	10011.963	10166.378	9919.669	9753.785	5445.285	5539.906
n	512	503	490	509	490	488	271	272

Note: Number of Free Parameters 35. *b* refers to the unstandardised individual-level posterior coefficient. *SD* refers to the Posterior Standard Deviation. χ^2 refers to the Bayesian posterior predictive p-value. BIC refers to the Bayesian information criterion.
* p < .05, ** p < .01, *** p < .001 (one-tailed tests).

Table 3

Belongingness to Family Moderating the Regression between Pro-suicide Site Exposure and Happiness (Model 2)

	Country							
	US		UK		Germany		Finland	
	Female	Male	Female	Male	Female	Male	Female	Male
Explanatory	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*
variables	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)
Pro-suicide	-.173*	-.180*	-.156*	-.213**	-.506***	-.262**	-.246*	-.118
site exposure	(.083)	(.089)	(.088)	(.079)	(.113)	(.102)	(.112)	(.123)
Belongingness	.399***	.441***	.497***	.573***	.457***	.435***	.559***	.464***
to family	(.095)	(.098)	(.088)	(.093)	(.102)	(.101)	(.116)	(.131)
Interaction	.066	.164*	.120	.020	-.085	-.072	-.082	.309***
term	(.071)	(.076)	(.076)	(.066)	(.066)	(.074)	(.079)	(.093)
Belongingness	.380***	.331***	.538***	.574***	.557***	.602***	.378**	.623***
to friends	(.096)	(.099)	(.091)	(.095)	(.101)	(.102)	(.113)	(.125)
Age	-.021	-.016	.041*	-.003	.045	-.047*	-.071*	.023
	(.025)	(.025)	(.024)	(.023)	(.029)	(.026)	(.035)	(.031)
Employed or	-.185	.488*	.145	.713**	.111	.550*	-.207	.944***
student	(.184)	(.276)	(.208)	(.222)	(.224)	(.277)	(.253)	(.274)
Living with	-.567**	-.359*	-.639***	-.171	-.134	.164	-.513	.172
parents	(.191)	(.206)	(.189)	(.189)	(.239)	(.211)	(.321)	(.271)
R^2	.161	.159	.252	.293	.227	.241	.216	.360
Model fit								
χ^2	.475	.476	.482	.464	.482	.478	.437	.428
BIC	12061.049	11706.560	11529.724	11823.694	11669.388	11348.695	6394.603	6412.087
n	512	503	490	509	490	488	271	272

Note: Number of free parameters 44. *b* refers to the unstandardised individual-level posterior coefficient. *SD* refers to the posterior standard deviation. Interaction term refers to pro-suicide site exposure x belongingness to family. χ^2 refers to the Bayesian posterior predictive p-value. BIC refers to the Bayesian information criterion.
* p < .05, ** p < .01, *** p < .001 (one-tailed tests).

Table 4

Belongingness to Friends Moderating the Regression between Pro-suicide Site Exposure and Happiness (Model 3)

	Country							
	US		UK		Germany		Finland	
	Female	Male	Female	Male	Female	Male	Female	Male
Explanatory	*b*	*b*	*b*	*b*	*b*	*b*	*b*	*b*
variables	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)	(*SD*)
Pro-suicide	-.189*	-.224**	-.194*	-.199**	-.398***	-.209*	-.223*	-.272**
site exposure	(.082)	(.090)	(.084)	(.079)	(.102)	(.108)	(.106)	(.112)
Belongingness	.378***	.347***	.544***	.556***	.545***	.591***	.363**	.642***
to friends	(.096)	(.099)	(.090)	(.095)	(.102)	(.102)	(.112)	(.126)
Interaction	-.019	-.065	.126*	.154*	.036	.008	-.281**	.277**
term	(.080)	(.081)	(.075)	(.069)	(.065)	(.070)	(.112)	(.107)
Belongingness	.409***	.465***	.488***	.569***	.440***	.431***	.557***	.481***
to family	(.095)	(.098)	(.089)	(.092)	(.102)	(.101)	(.112)	(.132)
AGE	-.022	-.013	.040*	-.007	.045	-.049*	-.079*	.033
	(.025)	(.025)	(.024)	(.022)	(.029)	(.026)	(.035)	(.031)
Employed or	-.188	.487*	.170	.726**	.124	.546*	-.230	.921**
student	(.184)	(.277)	(.208)	(.221)	(.224)	(.278)	(.249)	(.276)
Living with	-.564**	-.352	-.629***	-.165	-.141	.160	-.591*	.254
parents	(.191)	(.207)	(.190)	(.187)	(.240)	(.211)	(.318)	(.273)
R^2	.160	.151	.253	.300	.225	.239	.232	.349
Model fit								
χ^2	.476	.476	.482	.466	.482	.478	.437	.429
BIC	11940.477	11653.469	11542.669	11778.934	11683.782	11405.598	6198.191	6347.374
n	512	503	490	509	490	488	271	272

Note: Number of Free Parameters 44. *b* refers to the unstandardised individual-level posterior coefficient. *SD* refers to the posterior standard deviation. Interaction term refers to pro-suicide site exposure x belongingness to friends. χ^2 refers to the Bayesian posterior predictive p-value. BIC refers to the Bayesian Information criterion.
* p < .05, ** p < .01, *** p < .001 (one-tailed tests).